



Recycling and Reclaiming Coal Ash for Beneficial Use

Early History of Coal Ash Recycling

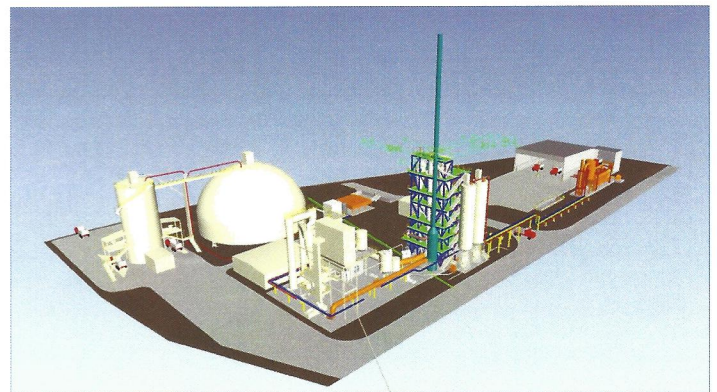
The Clean Air Act of 1970 required coal-fired power plants to reduce emissions of particulate matter. Power plants installed pollution control equipment to capture fly ash and dispose of it in ponds or landfills. Alternatively, this by-product fly ash could be used to make stronger, more durable concrete.

Coal Ash Recycling using Thermal Processing

Following the Clean Air Act Amendments of 1990, the quality of by-product fly ash deteriorated due to efforts at power plants designed to clean air emissions. Many sources of by-product fly ash became unsuitable for use in concrete production. Therefore, SEFA implemented a strategy to thermally process (recycle) by-product fly ash as it is produced at a power plant to remove impurities. SEFA has constructed and operates recycling plants in the southeastern United States.

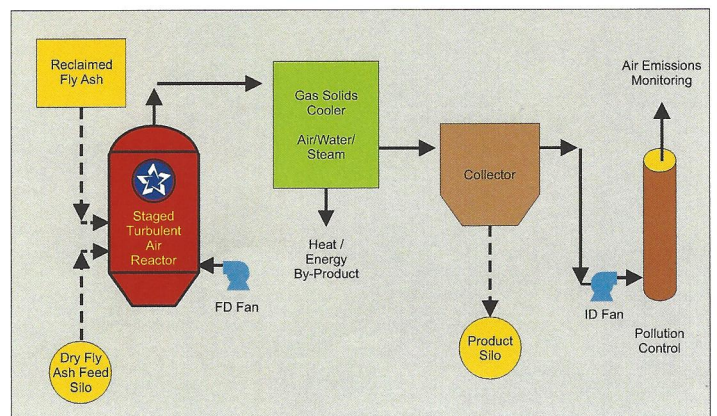
Pond Ash Recycling using Thermal Processing

Most of the coal ash that has been produced was disposed in ponds and landfills. Pond ash does not have acceptable strength-producing characteristics for use in concrete production. Simply drying pond ash will not make it acceptable for use in concrete. However, SEFA has developed a thermal process that will transform a pond ash with poor strength-producing characteristics into a high-quality, specification-grade fly ash with good strength-producing and excellent durability-enhancing characteristics. Therefore, SEFA has expanded our recycling strategy to include pond ash and landfill ash.



STAGED TURBULENT AIR REACTOR

- High-Temperature Calcining Process
- Removes Organic Matter and Other Impurities
- Can Manipulate Particle Surface Chemistry
- Recycles Post-Industrial Byproducts
- Pure Mineral Matter – 100% Inorganic
- Capable of Processing Millions of Tons for Use



STAR® Process Flow Diagram